

IN THE CLAIMS

1-21 (canceled)

22. (currently amended) A process for preparing a metal powder or a metal hydride powder comprising the steps of: ~~comprising mixing an oxide of at least one of Ti, Zr, Hf, V, Nb, Ta and Cr with a reducing agent and heating the resultant mixture in an oven, optionally under an atmosphere of hydrogen until a reduction reaction~~

mixing an oxide of at least one of Ti, Zr, Hf, V, Nb, Ta and Cr with a reducing agent and heating the resultant mixture in an oven, optionally under an atmosphere of hydrogen until a reduction reaction starts;

leaching the reaction product; and

~~starts, leaching the reaction product; and~~

washing and drying the resultant product to yield the metal powder or metal hydride powder, wherein the oxide has a mean particle size of 0.5 to 20 μm , a BET specific surface area of 0.5 to 20 m^2/g and a minimum content of 94 wt.%.

23. (previously presented) A process according to claim 22, wherein the mixture is heated to 800 to 1400°C in an oven.

24. (previously presented) A process according to claim 22, wherein the oxide has a mean particle size of 1 to 6 μm .

25. (previously presented) A process according to claim 22, wherein the oxide has a BET specific surface area of 1 to 12 m^2/g .

26. (previously presented) A process according to claim 25, wherein the oxide has a BET specific surface area of 1 to 8 m^2/g .

27. (previously presented) A process according to claim 22, wherein the oxide has a minimum content of 96 wt.%.

28. (previously presented) A process according to claim 27, wherein the oxide has a minimum content of 99 wt.%.

29. (previously presented) A process according to claim 22, wherein the proportion of Fe and Al impurities in the oxide are each < 0.2 wt.%, calculated as the oxides.

30. (previously presented) A process according to claim 29, wherein the proportion of Fe and Al impurities in the oxide are each < 0.1 wt.%, calculated as the oxides.

31. (previously presented)A process according to claim 22, wherein the proportion of Si impurities in the oxide is < 1.5 wt.%, calculated as SiO_2 .

32. (previously presented)A process according to claim 31, wherein the proportion of Si impurities in the oxide is < 0.3 wt.%, calculated as SiO_2 .

33. (previously presented)A process according to claim 22, wherein the proportion of Na impurities in the oxide is < 0.05 wt.%, calculated as Na_2O .

34. (previously presented)A process according to claim 22, wherein the proportion of P impurities in the oxide is < 0.2 wt.%, calculated as P_2O_5 .

35. (previously presented)A process according to claim 22, wherein the loss on ignition of the oxide at 1000°C as constant weights is < 1 wt.%.

36. (previously presented)A process according to claim 22, wherein the tamped down bulk density according to EN ISO 787-11 (previously DIN 53194) of the oxide is 800 to 1600 kg/m^3 .

37. (previously presented)A process according to claim 22, wherein a proportion of up to 15 wt.% of said oxide is replaced by an additive selected from the group consisting of MgO , CaO , Y_2O_3 and CeO_2 .

38. (previously presented)A process according to claim 22, comprising reacting a reducing agent comprising an alkaline earth metal, alkali metal, or a hydride thereof with a compound to reduce the compound.

39. (previously presented)A process according to claim 38, wherein the reducing agent comprises at least one of Mg , Ca , CaH_2 or Ba .

40. (previously presented)A process according to claim 22, wherein the reducing agent has a minimum content of 99 wt.%.

41. (previously presented)A process according to claim 22, wherein the reaction is performed under a protective gas.

42. (previously presented)A process according to claim 22, wherein the reaction product is leached with hydrochloric acid.

43. (previously presented)A process according to claim 23, wherein the oxide used has a mean particle size of 1 to 6 μm .

44. (previously presented)A process for preparing a metal powder or a metal hydride powder comprising mixing an oxide of at least one of Ti , Zr , Hf , V , and Cr with a reducing agent

and heating the resultant mixture in an oven, optionally under an atmosphere of hydrogen until a reduction reaction starts, and leaching the reaction product; and

washing and drying the resultant product to yield the metal powder or metal hydride powder, wherein the oxide has a mean particle size of 0.5 to 20 μm , a BET specific surface area of 0.5 to 20 m^2/g and a minimum content of 94 wt.%.

45. (previously presented) A process for preparing a metal powder or a metal hydride powder comprising sequentially mixing an oxide of at least one of Ti, Zr, Hf, V, Nb, Ta and Cr with a reducing agent and heating the resultant mixture in an oven, optionally under an atmosphere of hydrogen until a reduction reaction starts, leaching the reaction product; and

washing and drying the resultant product to yield the metal powder or metal hydride powder, wherein the oxide has a mean particle size of 0.5 to 20 μm , a BET specific surface area of 0.5 to 20 m^2/g and a minimum content of 94 wt.%.

46. (new) A process according to claim 22, wherein the process consists of said mixing, leaching and washing and drying steps.

47. (new) The method of claim 44, wherein the process consists of said mixing, heating, leaching, washing and drying steps.

48. (new) the method of claim 45, wherein the process consists of said mixing, heating, washing and drying steps.

REMARKS

Entry of this amendment and reconsideration of this application are respectfully requested.

Claims 22-45 were finally rejected under 35 U.S.C. §103(a) for allegedly being unpatentable over Shekhter. Applicants respectfully traverse.

Shekhter states that his:

"... invention relates to the production of tantalum, niobium and other metal powders and their alloys by the reduction of the corresponding metal oxide with gaseous active metals such as Mg, Ca and other elemental and compound reducing materials, in gaseous form,"

(see Shekhter, col. 1, lines 12 to 18 and claims 26, 31, 48 and especially 50).

The problem Shekhter was trying to overcome was stated as follows:

"... the reason these approaches failed in the past was because the reductions were carried out by blending the reducing agents with the metal oxide. The reaction took place in contact with the molten reducing agent and under conditions of inability to control the temperature of highly exothermic reactions, "

(see Shekhter, col. 3, lines 7 to 12).

To overcome this problem, Shekhter alleges that:

"We have discovered that the prior art problems can be eliminated when metal oxides such as Ta₂O₅ and Nb₂O₅ and suboxides in massive amounts are reduced with magnesium in gaseous form, substantially or preferably entirely. The oxide source should be substantially or preferably entirely in solid. The oxide is provided in the form of a porous solid with high access throughout its mass by the gaseous reducing agent."

(see Shekhter, col. 3, lines 58 to 65).

The comparison of the vapor pressures for the used reducing metals (see Shekhter, col. 4, lines 21 to 35) with the conditions disclosed in our examples show that the reaction container is filled powdered oxides and metal granules and filled with argon up to a pressure of 100 hPa above atmospheric pressure before heating up. This means that at the reaction temperature of about 1250°C a much higher pressure is in the container and the reducing metal do not react in the gaseous form. Moreover whereas the claimed invention starts from a physical mixture of solid compounds Shekhter states: